

Lesson 2.7

1. $-22x^2$
2. $14x^2$
3. $-2x^2 - 2x$
4. $-18x^2 + 12x$
5. $x^2 + 4x$
6. $3x^2 - 24x$
7. $10x^2 + 50x$
8. $7x^2 - 35x$
9. $-2x^2 - 2x$
10. $x^2 - 8x$
11. $-7a$
12. $-45n$
13. $-3x - 2$
14. $-2k + 3$
15. $-14x + 6y$
16. $5x + 30y$
17. $x + 2y$
18. $9x - 24$
19. $3 + 6x$
20. $3x - 9y$
21. $8.5y + 3.6$
22. $-20a - 30$

Reteaching—Chapter 3

Lesson 3.1

1. $t = 56$
2. $x = -44$
3. $y = 6.1$
4. $m = -40$
5. $r = -16$
6. $x = -5$
7. $z = \frac{2}{5}$
8. $a = -3$
9. $b = -11.5$
10. $x = \frac{1}{10}$
11. $x + 2790 = 5000$; \$2210
12. $35 + 90 + c = 180$; $m\angle C = 55$
13. $x = 18$
14. $t = -26$
15. $y = 25$
16. $m = 20.4$
17. $b = -9.5$
18. $x = 640$
19. $y = 8\frac{1}{2}$
20. $a = -5$
21. $x = 1.6$
22. $y = 7$
23. $b = 180$
24. $c = -10.7$
25. $x - 60 = 215$, \$275

ANSWERS

Lesson 3.2

1. $d = 7$
2. $y = -5$
3. $a = -7$
4. $x = -12$
5. $s = 17$
6. $t = 21\frac{1}{3}$
7. $x = 12$
8. $x = -4\frac{2}{5}$
9. $3\frac{1}{2}$ inches, or 3.5 inches
10. $22\frac{1}{2}$ hours
11. $m = 55$
12. $y = 70$
13. $a = 64$
14. $x = -68$
15. $t = -312$
16. $n = -48$
17. $x = -50.4$
18. $y = 48.02$
19. -49.2
20. 45

Lesson 3.3

1. $x = 2$
2. $t = 6$
3. $y = 4$
4. $x = 5$

5. $x = 5$

6. $z = 6$

7. $s = 16$

8. $w = 9$

9. $f = -9$

10. $c = 7$

11. $x = 6$

12. $t = -81$

13. $x = 0.5$

14. $x = 4$

15. $j = 5$

16. $k = -5$

17. $80 + 6s = 290$; each scarf cost \$35.

18. $35 + 8c = 155$; each train car cost \$15.

19. $0.50x + 100 = 150$; they would need to sell 100 streamers.

Lesson 3.4

1. $x = 1$

2. $y = -8$

3. $a = -4$

4. $x = 2$

5. $t = -9$

6. $x = 1$

7. $y = 2.5$

8. $b = -1$

9. $w = 2$

10. $p = 2$

ANSWERS

11. $x = 4$
12. $x = \frac{1}{8}$
13. $n = -\frac{7}{15}$
14. $m = 6$
15. $x = -16$
16. $y = 36$
17. She must score 93.

Lesson 3.5

1. $x = -6$
2. $t = 5$
3. $z = 3$
4. $k = -13.5$
5. $x = 4$
6. $m = 2$
7. $h = 3$
8. $n = -3$
9. $t = 3$
10. $c = -5$
11. $f = -1$
12. $y = 7$ 5 5-6
13. $3(x - 1.50) = 35.97$; the original cost is \$13.49.
14. $12x = 2(x + 6)$; $x = 1.2$
15. $4(x - 2) = 20$; the original average cost was \$7.
16. $29 + 0.15x = 20 + 0.25x$; the rates are equal when you drive 90 miles in one day.

Lesson 3.6

1. $x = y + 10$
2. $y = z - x$
3. $z = x + y$
4. $x = 2y - a$
5. $y = 32 - x + z$
6. $t = \frac{d}{r}$
7. $h = \frac{2A}{b}$
8. $x = \frac{5}{3}y + 5$
9. $y = 2x - 3$
10. $l = \frac{P}{2} - w$
11. $w = 3$
12. $r = 7$
13. 10 meters
14. 4 hours
15. \$7000
16. 16 kPa

Reteaching—Chapter 4

Lesson 4.1

1. $\frac{2}{5}$
2. $\frac{5}{1}$
3. $\frac{9}{8}$
4. $\frac{3}{2}$
5. $\frac{6}{17}$

ANSWERS

13. 40

14. 10

15. Domain: all real numbers
Range: all nonnegative numbers

16. Domain: all real numbers
Range: all nonnegative numbers

17. Domain: all real numbers
Range: all nonpositive numbers

18. Domain: all real numbers
Range: $y \geq -3$

19. Domain: all real numbers
Range: $y \leq 1$

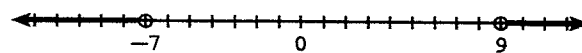
20. Domain: all real numbers
Range: all nonnegative numbers

21. Domain: all real numbers
Range: $y \geq 6$

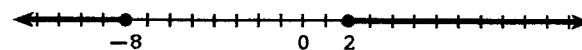
22. Domain: all real numbers
Range: all nonnegative numbers

12. $x = -3$ or $x = 2\frac{1}{2}$

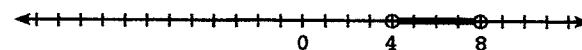
13. $x < -7$ or $x > 9$



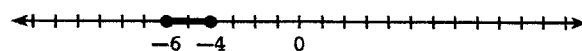
14. $x \leq -8$ or $x \geq 2$



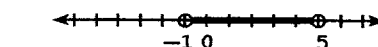
15. $4 < x < 8$



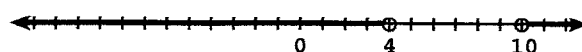
16. $-6 \leq x \leq -4$



17. $-1 < x < 5$



18. $x < 4$ or $x > 10$



Reteaching—Chapter 7

Lesson 7.1

1. (2, 2)
2. (1, 2)
3. about 76 feet
4. about 7.3 meters by 12.7 meters

Lesson 7.2

1. $(-1, -4)$
2. $(4.5, 2)$
3. $(12, 1)$
4. $(2, 1)$
5. $(3, 5)$
6. $(-9, -7)$

Lesson 6.5

1. $x = 8$ or $x = -12$
2. $x = 4$ or $x = 14$
3. $x = 1$ or $x = 5$
4. $x = 15$ or $x = 9$
5. $x = 6$ or $x = 4$
6. $x = 11$ or $x = -25$
7. $x = 6$ or $x = -5$
8. $x = 3$ or $x = 2\frac{1}{3}$
9. $x = 4$ or $x = -5$
10. $x = 2$ or $x = -18$
11. $x = 4$ or $x = -\frac{4}{5}$

ANSWERS

7. $\begin{cases} x + y = 346 \\ x = \frac{1}{3}(y - 6) \end{cases}$
85 and 261

8. $\begin{cases} x + y = 90 \\ x = \frac{2}{3}y \end{cases}$
 54° and 36°

9. $\begin{cases} r = 3s \\ r + s = 28 \end{cases}$
Raul is 21 years old and Sara is 7 years old.

10. $\begin{cases} x + y = 8000 \\ 0.07x + 0.05y = 500 \end{cases}$
\$5000 at 7% and \$3000 at 5%

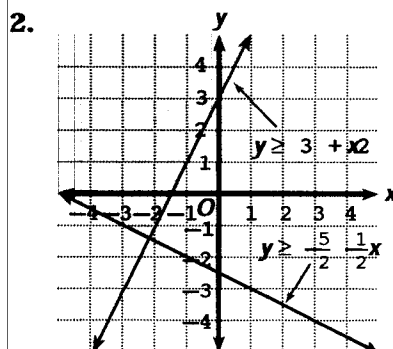
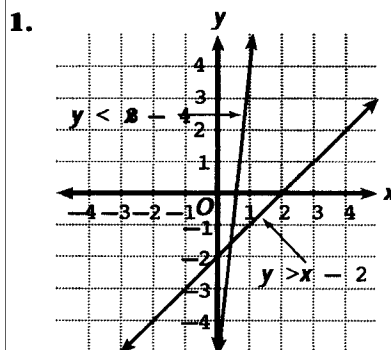
Lesson 7.3

1. (10, 15)
2. (-1, 2)
3. (0.2, 8)
4. (4, -0.5)
5. (2, -1)
6. (4, 3)
7. (5, 1)
8. (2, 0)
9. (1.2, -0.6)
10. (2, 2)
11. (6, 4)
12. (4, -1)
13. $\begin{cases} t + c = 114 \\ 12t + 9c = 1242 \end{cases}$
72 T-shirts and 42 baseball caps

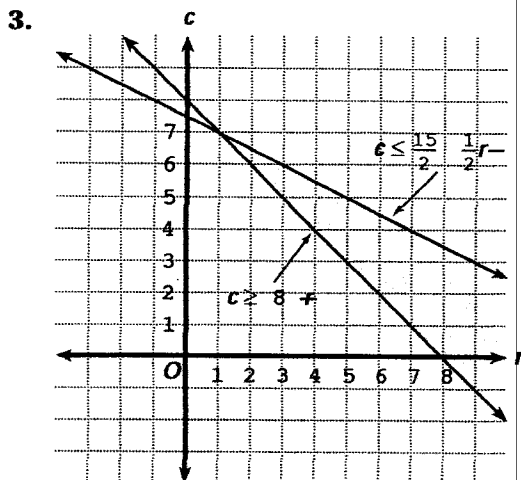
Lesson 7.4

1. inconsistent
2. (3, 1); consistent
3. (0, 2); consistent
4. inconsistent
5. consistent and dependent
6. inconsistent
7. (-6, 8); consistent and independent
8. inconsistent
9. consistent and dependent
10. consistent and dependent
11. (3, 4); consistent and independent
12. (0.5, 1.2); consistent and independent

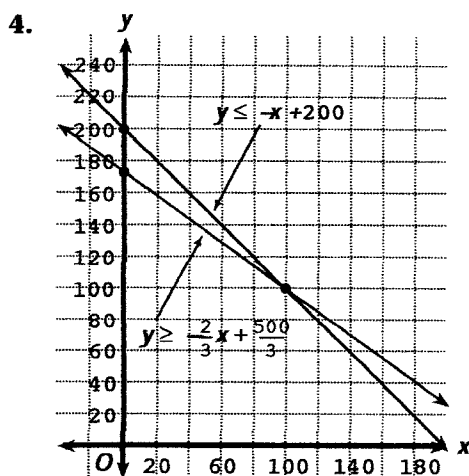
Lesson 7.5



ANSWERS



Answers may vary. Sample answer:
(5, 5) and (8, 2)



Answers may vary. Sample answer:
(180, 20) and (100, 100)

Lesson 7.6

1. $\begin{cases} x = y + 1 \\ x + y = 27 \end{cases}$

Joel is 13 years old; Roberto is 14 years old

2. $\begin{cases} x = 3y \\ x + 6 = 2(y + 6) \end{cases}$

Latisha is 18 years old now.

3. $\begin{cases} p + n = 260 \\ p + 5n = 432 \end{cases}$

43 nickels and 217 pennies

4. $\begin{cases} n + q = 57 \\ 5n + 25q = 725 \end{cases}$

22 quarters and 35 nickels

5. $\begin{cases} x + y = 42 \\ 32x + 40y = 1440 \end{cases}$

thirty 32-cent stamps and twelve 40-cent stamps

6. $\begin{cases} t + u = 12 \\ u = 3t \end{cases}$
39

7. $\begin{cases} t + u = 10 \\ 2(10t + u) - 1 = 10u + t \end{cases}$
37

Reteaching—Chapter 8

Lesson 8.1

1. 625

2. 81

3. 1,000,000

4. 128

5. 32,768

6. 729

7. 6

8. 10,000

9. 144

10. 1

11. $3^9 = 19,683$

12. $2^7 = 128$

13. $10^8 = 100,000,000$

14. $5^7 = 78,125$

15. $8^{10} = 1,073,741,824$

16. $4^6 = 4096$

17. $15a^5$

18. $-21c^3d^2$

Algebra 2 - Keystone Review - Module 1 B

3.1 Solving Equations by Adding/Subtracting

1. $t = 8$

2. $x = -44$

3. $y = 6.1$

4. $m = -40$

5. $r = -16$

6. $x = -5$

7. $z + \frac{3}{4} = 1\frac{3}{20}$

$$z + \frac{15}{20} = \frac{23}{20}$$

$$z = \frac{8}{20} = \boxed{\frac{2}{5}}$$

8. $a = -3$

9. $b = -11.5$

10. $x + \frac{1}{10} = \frac{1}{5}$

$$x = \frac{2}{10} - \frac{1}{10}$$

$$x = \frac{1}{10}$$

11. $5000 = m + 2790$

$$m = 2210$$

12. $180 = 35 + 90 + c$

$$180 = 125 + c$$

$$c = 55$$

$$m\angle c = 55^\circ$$

13. $x = 18$

14. $t = -26$

15. $y = 25$

16. $m = 20.4$

17. $b = -9.5$

18. $x = 640$

19. $y - 3\frac{5}{6} = 4\frac{2}{3}$

$$y - \frac{23}{6} = \frac{14}{3}$$

$$y = \frac{28}{6} + \frac{23}{6}$$

$$y = \frac{51}{6} = \boxed{\frac{17}{2}}$$

20. $a = -5$

21. $x = 1.6$

22. $y - 4\frac{1}{8} = 2\frac{7}{8}$

$$y = \frac{33}{8} + \frac{23}{8}$$

$$y = \frac{56}{8} = \boxed{7}$$

23. $b = 180$

24. $c = -10.7$

25. $p = \text{paycheck}$

$$p - 60 = 215$$

$$p = 275$$

3.2 Solving Equations by Multiplying and Dividing

1. $d = 7$

2. $y = -5$

3. $a = -7$

4. $x = -12$

5. $s = 17$

6. $t = 21\frac{1}{3}$

7. $x = 12$

8. $x = 4\frac{2}{5}$

9. perimeter = 14 inches

side = x

$4x = 14$

$x = 3.5$

10. $h =$ hours worked

$4.5x = 101.25$

$x = 22.5$ hours

11. $m = 55$

12. $y = 70$

13. $a = 64$

14. $x = -68$

15. $t = -312$

16. $n = -48$

17. $x = -50.4$

18. $y = 48.02$

19. $m = -6$ $\Delta y = 8.2$

$$\frac{\Delta y}{\Delta x} = -6$$

$$\frac{8.2}{\Delta x} = -6$$

$$8.2 = -6(\Delta x)$$

$$\Delta x = -1.37$$

20. $x =$ total candy bars

$$\frac{x}{5} = 9$$

$$x = 45$$

3.3 Solving Two-Step Equations

$$\begin{aligned}1. \quad 3x + 2 &= 8 \\ 3x &= 6 \\ x &= 2\end{aligned}$$

$$\begin{aligned}2. \quad 2t - 4 &= 8 \\ 2t &= 12 \\ t &= 6\end{aligned}$$

$$\begin{aligned}3. \quad 5y + 10 &= 30 \\ 5y &= 20 \\ y &= 4\end{aligned}$$

$$\begin{aligned}4. \quad 7x + 2 &= 37 \\ 7x &= 35 \\ x &= 5\end{aligned}$$

$$\begin{aligned}5. \quad 7x &= 35 \\ x &= 5\end{aligned}$$

$$\begin{aligned}6. \quad \frac{z}{2} &= 3 \\ z &= 6\end{aligned}$$

$$\begin{aligned}7. \quad \frac{s}{4} &= 4 \\ s &= 16\end{aligned}$$

$$\begin{aligned}8. \quad 9w &= 81 \\ w &= 9\end{aligned}$$

$$\begin{aligned}9. \quad 2f &= -18 \\ f &= -9\end{aligned}$$

$$\begin{aligned}10. \quad 6c &= 42 \\ c &= 7\end{aligned}$$

$$\begin{aligned}11. \quad 8x &= 48 \\ x &= 6\end{aligned}$$

$$12. \quad 2 - \frac{t}{9} = 11$$

$$\frac{t}{9} = -9$$

$$t = -81$$

$$\begin{aligned}13. \quad 32x &= 16 \\ x &= \frac{1}{2}\end{aligned}$$

$$\begin{aligned}14. \quad 16x &= 64 \\ x &= 4\end{aligned}$$

$$\begin{aligned}15. \quad 14j &= 70 \\ j &= 5\end{aligned}$$

$$\begin{aligned}16. \quad 6k &= -30 \\ k &= -5\end{aligned}$$

$$17. \quad 8 \text{ hats at } \$10/\text{hat}$$

$$6 \text{ scarves: } 1 \text{ scarf cost} = x$$

$$8(10) + 6x = 290$$

$$6x = 210$$

$$\boxed{x = \$35}$$

$$18. \quad t = \text{price of each train car}$$

$$35 + 8t = 155$$

$$8t = 120$$

$$\boxed{t = \$15}$$

$$19. \quad s = \# \text{ of streamers sold}$$

$$(.5)s + 100 = 150$$

$$.5s = 50$$

$$\boxed{s = 100}$$

3.4 Solving Multistep Equations

1. $2x + 1 = 5x - 2$

$$3 = 3x$$

$$x = 1$$

2. $8y - 7 = 7y - 15$

$$y = -8$$

3. $4a + 2 = 8a + 18$

$$-16 = 4a$$

$$a = -4$$

4. $9x + 6 = 26 - x$

$$10x = 20$$

$$x = 2$$

5. $12t - 19 = 15t + 8$

$$-27 = 3t$$

$$t = -9$$

6. $13 - 6x = 6x + 1$

$$12 = 12x$$

$$x = 1$$

7. $4y - 11 = 9 - 4y$

$$8y = 20$$

$$y = \frac{5}{2}$$

8. $15b + 14 = 5b + 4$

$$10b = -10$$

$$b = -1$$

9. $30w - 50 = 12w - 14$

$$18w = 36$$

$$w = 2$$

10. $7p - 10 = 12 - 4p$

$$11p = 22$$

$$p = 2$$

11. $\frac{5x}{4} = 3 + \frac{x}{2}$

$$\frac{5x}{4} = 3 + \frac{2x}{4}$$

$$\frac{3x}{4} = 3$$

$$3x = 12$$

$$x = 4$$

12. $\frac{3}{4} - 3x = \frac{1}{4} + x$

$$\frac{1}{2} = 4x$$

$$x = \frac{1}{8}$$

13. $\frac{1}{5} + 2n = \frac{2}{3} + 3n$

$$\frac{1}{5} - \frac{2}{3} = n$$

$$\frac{3}{15} - \frac{10}{15} = n$$

$$n = -\frac{7}{15}$$

14.

$$\frac{m}{3} = \frac{m}{2} - 1$$

$$\frac{2m}{6} = \frac{3m}{6} - 1$$

$$1 = \frac{m}{6}$$

$$m = 6$$

15. $\frac{x}{8} = \frac{x}{4} + 2$

$$\frac{x}{8} = \frac{2x}{8} + 2$$

$$-2 = \frac{x}{8}$$

$$x = -16$$

16. $\frac{5y}{6} - 1 = \frac{3y}{4} + 2$

$$\frac{10y}{12} - 1 = \frac{9y}{12} + 2$$

$$\frac{y}{12} = 3$$

$$y = 36$$

$x = 3^{\text{rd}} \text{ test score}$

17. $\frac{83 + 94 + x}{3} = 90$

$$177 + x = 270$$

$$x = 93$$

3.5 Using the Distributive Property

$$\begin{aligned}1. \quad 6(x+2) &= -24 \\ 6x + 12 &= -24 \\ 6x &= -36 \\ x &= -6\end{aligned}$$

$$\begin{aligned}2. \quad 3(2t+4) &= 42 \\ 6t + 12 &= 42 \\ 6t &= 30 \\ t &= 5\end{aligned}$$

$$\begin{aligned}3. \quad 9(z+2) &= 45 \\ 9z + 18 &= 45 \\ 9z &= 27 \\ z &= 3\end{aligned}$$

$$\begin{aligned}4. \quad 8(k+20) &= 52 \\ 8k + 160 &= 52 \\ 8k &= -108 \\ k &= -13.5\end{aligned}$$

$$\begin{aligned}5. \quad 2(x+2) + 4 &= 16 \\ 2x + 8 &= 16 \\ 2x &= 8 \\ x &= 4\end{aligned}$$

$$\begin{aligned}6. \quad 6(3m-2) &= 24 \\ 18m - 12 &= 24 \\ 18m &= 36 \\ m &= 2\end{aligned}$$

$$\begin{aligned}7. \quad 2h + 2(2h+4) &= 26 \\ 2h + 4h + 8 &= 26 \\ 6h &= 18 \\ h &= 3\end{aligned}$$

$$\begin{aligned}8. \quad 7(2n+3) &= 91 \\ 14n + 21 &= 91 \\ 14n &= 70 \\ n &= 5\end{aligned}$$

$$\begin{aligned}9. \quad 8(3t+2) - 60 &= 28 \\ 24t + 16 - 60 &= 28 \\ 24t - 44 &= 28 \\ 24t &= 72 \\ t &= 3\end{aligned}$$

$$\begin{aligned}10. \quad -4(8c+2) - 52 &= 100 \\ -32c - 8 - 52 &= 100 \\ -32c &= 160 \\ c &= -5\end{aligned}$$

$$\begin{aligned}11. \quad 4(2f-3) + 3 &= 39 \\ 8f - 12 + 3 &= 39 \\ 8f - 9 &= 39 \\ 8f &= 48 \\ f &= 6\end{aligned}$$

$$\begin{aligned}12. \quad 5(3y+2) + 10 &= 105 \\ 15y + 10 + 10 &= 105 \\ 15y &= 85 \\ y &= 5\frac{2}{3}\end{aligned}$$

$$\begin{aligned}13. \quad x &= \text{CD cost} \\ 3(x-1.5) &= 35.97 \\ 3x - 4.5 &= 35.97 \\ 3x &= 40.47 \\ x &= 13.49\end{aligned}$$

$$\begin{aligned}14. \quad 4(3x) &= 2(2) + 2(x+4) \\ 12x &= 4 + 2x + 8 \\ 10x &= 12 \\ x &= \frac{6}{5}\end{aligned}$$

$$\begin{aligned}15. \quad x &= \text{original entree cost} \\ 4(x-2) &= 20 \\ 4x - 8 &= 20 \\ 4x &= 28 \\ x &= 7\end{aligned}$$

$$\begin{aligned}16. \quad x &= \text{miles traveled} \\ 29 + .15x &= 20 + .25x \\ 9 &= .1x \\ x &= 90\end{aligned}$$

3.6 Using Formulas and Literal Equations

1. $x - y = 10$

$$x = y + 10$$

2. $x + y = z$

$$y = z - x$$

3. $x - z = -y$

$$z = x + y$$

4. $a + x = 2y$

$$x = 2y - a$$

5. $x + y - z = 32$

$$y = z - x + 32$$

6. $d = rt$

$$t = \frac{d}{r}$$

7. $A = \frac{1}{2}bh$

$$2A = bh$$

$$h = \frac{2A}{b}$$

8. $3x + 5y = 15$

$$3x = 15 - 5y$$

$$x = \frac{15}{3} - \frac{5y}{3}$$

$$x = 5 - \frac{5y}{3}$$

9. $12x - 6y = 18$

$$6y = 12x - 18$$

$$y = 2x - 3$$

10. $p = 2(l + w)$

$$p = 2l + 2w$$

$$2l = p - 2w$$

$$l = \frac{p}{2} - w$$

11. $p = 2l + 2w$

$$30 = 2(12) + 2w$$

$$6 = 2w$$

$$w = 3$$

12. $C = 2\pi r$

$$14\pi = 2\pi r$$

$$r = 7$$

13. $A = \frac{1}{2}bh$

$$75 = \frac{1}{2}(15)h$$

$$150 = 15h$$

$$h = 10 \text{ m}$$

14. $d = rt$

$$320 = 80t$$

$$t = 4 \text{ hours}$$

15. $P = R - C$

$$8,000 = 15,000 - C$$

$$C = \$7,000$$

16. $P_1 V_1 = P_2 V_2$

$$4(8) = P_2(2)$$

$$32 = P_2(2)$$

$$P_2 = 16 \text{ kPa}$$

7.1 Graphing Systems of Equations (Page 109)

Write each equation in slope-intercept form:

9. $2x + 6y = -5$

$$6y = -2x - 5$$

$$y = -\frac{1}{3}x - \frac{5}{6}$$

10. $7y - 14x - 21 = 0$

$$7y = 14x + 21$$

$$y = 2x + 3$$

11. $3 + 4y = 16x$

$$4y = 16x - 3$$

$$y = 4x - \frac{3}{4}$$

12. $-y - 5x = 25$

$$-y = 5x + 25$$

$$y = -5x - 25$$

13. $8 = 12y + 6x$

$$12y = -6x + 8$$

$$y = -\frac{1}{2}x + \frac{2}{3}$$

14. $13 - 4y = 2x$

$$4y = -2x + 13$$

$$y = -\frac{1}{2}x + \frac{13}{4}$$

15. $6(x + 3y) = 36$

$$6x + 18y = 36$$

$$18y = -6x + 36$$

$$y = -\frac{1}{3}x + 2$$

16. $18x + 18y = 36$

$$x + y = 2$$

$$y = -x + 2$$

Reteaching**7.1 Graphing Systems of Equations****◆ Skill A** Solving systems of equations by graphing

Recall Write each equation in slope-intercept form, $y = mx + b$. Then graph both equations on the same coordinate plane. The solution is the point where the lines intersect.

◆ Example

Solve the system of equations.

$$\begin{cases} y = -x + 2 \\ 2x - y = 1 \end{cases}$$

◆ Solution

The first equation is already solved for y . Solve the second equation for y .

$$\begin{aligned} 2x - y &= 1 \\ 2x - (2x) - y &= 1 - (2x) \\ -y &= (1 - 2x) \\ -1 &= \frac{(1 - 2x)}{-1} \\ y &= -1 + 2x \\ y &= 2x - 1 \end{aligned}$$

Subtraction Property of Equality

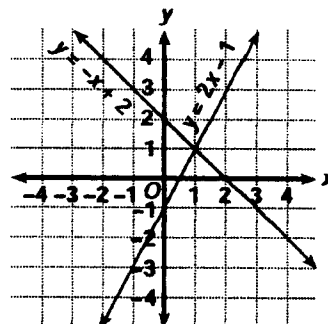
Division Property of Equality

Simplify.

Commutative Property of Addition

The graphs of both equations are shown.

The lines intersect at $(1, 1)$, so the solution is $(1, 1)$.

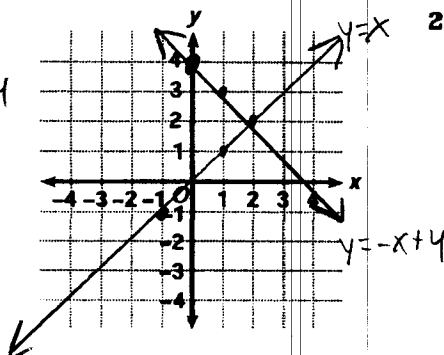


Solve by graphing. Check by substituting your solution into the original equations.

1. $\begin{cases} y = x \\ x + y = 4 \end{cases}$

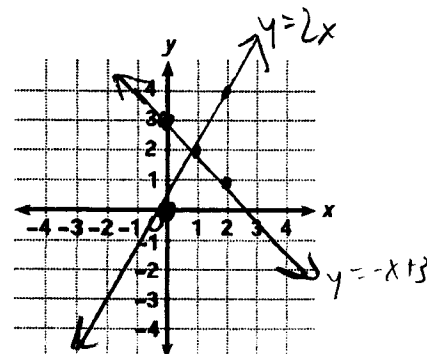
$$y = -x + 4$$

$$m = -\frac{1}{1}$$



Solution: $(2, 2)$

2. $\begin{cases} x + y = 3 \\ y = 2x \end{cases}$



Solution: $(1, 2)$

Practice Masters Level A**7.1 Graphing Systems of Equations**

Determine whether the given point is a solution of the system of equations.

1. $(1, 3)$ $\begin{cases} y = 5x - 2 \\ y = -3x + 6 \end{cases}$ yes

2. $(7, 5)$ $\begin{cases} y = 2x + 1 \\ y = x - 2 \end{cases}$ No

3. $(-1, 9)$ $\begin{cases} y = 14x + 5 \\ y = -7x + 2 \end{cases}$ No

4. $(0, 4)$ $\begin{cases} y = 4x + 4 \\ y = 15x + 4 \end{cases}$ yes

5. $(1, 1)$ $\begin{cases} y = 9x - 8 \\ y = -14x + 15 \end{cases}$ yes

6. $(2, 13)$ $\begin{cases} y = 8x - 4 \\ y = x + 10 \end{cases}$ No

7. $(5, -3)$ $\begin{cases} y = -x + 3 \\ y = 7x - 27 \end{cases}$ No

8. $(16, 3)$ $\begin{cases} y = 4x - 61 \\ y = -2x + 35 \end{cases}$ yes

Write each equation in slope-intercept form.

9. $2x + 6y = -5$ _____

10. $7y - 14x - 21 = 0$ _____

11. $3 + 4y = 16x$ _____

12. $-y - 5x = 25$ _____

13. $8 = 12y + 6x$ _____

14. $13 - 4y = 2x$ _____

15. $6(x + 3y) = 36$ _____

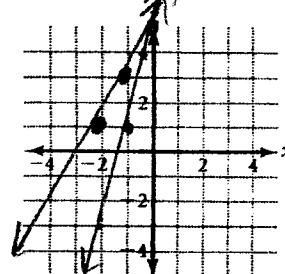
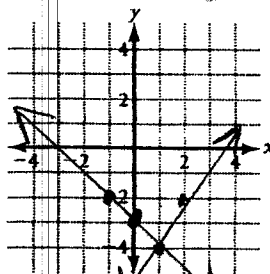
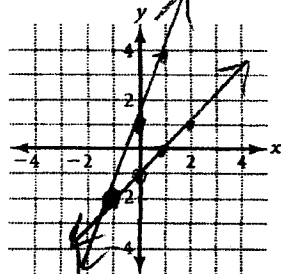
16. $18x + 18y = 36$ _____

Solve by graphing.

17. $\begin{cases} y = x - 1 \\ y = 3x + 1 \end{cases}$ $(-1, -2)$

18. $\begin{cases} y = -x - 3 \\ y = 2x - 6 \end{cases}$ $(1, -4)$

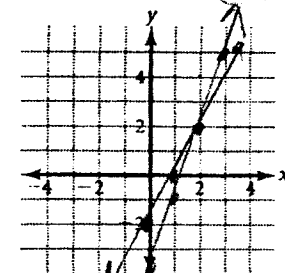
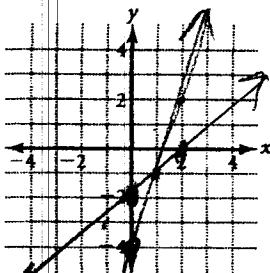
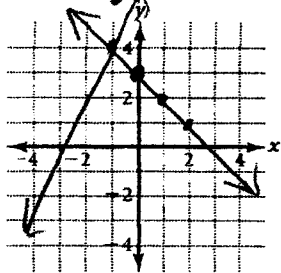
19. $\begin{cases} y = 2x + 5 \\ y = 4x + 5 \end{cases}$ $(0, 5)$



20. $\begin{cases} y = -x + 3 \\ y = 2x + 6 \end{cases}$ $(-1, 4)$

21. $\begin{cases} y = x - 2 \\ y = 3x - 4 \end{cases}$ $(1, -1)$

22. $\begin{cases} y = 3x - 4 \\ y = 2x - 2 \end{cases}$ $(2, 2)$



7.2 The Substitution Method

1. $y = 4x$ $4x + 5y = -24$
 $y = 4(-1)$ $4x + 5(4x) = -24$
 $y = -4$ $24x = -24$
 $x = -1$
 $(-1, -4)$

2. $y = 2$ $2x - 4y = 1$
 $2x - 4(2) = 1$
 $2x = 9$
 $x = \frac{9}{2}$
 $(\frac{9}{2}, 2)$

3. $2x - 4y = 20$ $\frac{x}{3} - y = 3$
 $2x = 4y + 20$
 $x = 2y + 10$ $\frac{2y+10}{3} - y = 3$
 $2x - 4(1) = 20$ $2y + 10 - 3y = 9$
 $2x = 24$ $y = 1$
 $x = 12$
 $(12, 1)$

4. $3y = 3x - 3$ $2x + 3y = 9$
 $y = x - 1$ $2x + 3(x - 1) = 9$
 $y = 1$ $3x + 3x - 3 = 9$
 $6x = 12$
 $x = 2$
 $(2, 1)$

5. $-3x + y = -4$ $-2x + 3y = 9$
 $y = 3x - 4$ $-2x + 3(3x - 4) = 9$
 $y = 9 - 4$ $-2x + 9x - 12 = 9$
 $y = 5$ $7x = 21$
 $x = 3$
 $(3, 5)$

6. $-x + 2y = -5$ $-3x + 5y = -8$
 $x = 2y + 5$ $-3(2y + 5) + 5y = -8$
 $x = 2(-7) + 5$ $-6y - 15 + 5y = -8$
 $x = -9$ $-y = 7$
 $y = -7$
 $(-9, -7)$

7. $x + y = 346$
 $\frac{x-6}{3} = y$ $3y + 6 + y = 346$
 $x - 6 = 3y$ $4y = 340$
 $x = 3y + 6$ $y = 85$
 $x = 261$

8. $x + y = 90$
 $x = \frac{2}{3}y$ $\frac{2}{3}y + y = 90$
 $\frac{5}{3}y = 90$
 $5y = 270$
 $y = 54$
 $x = 36$

9. $x = \text{Sara's Age}$

$3x = \text{Raul's Age}$

$4x = 28$

$x = 7$

Sara: 7

Raul: 21

10. $x(.07) + y(.05) = 500$

$x + y = 8000$

$x = 8000 - y$

$(8000 - y)(.07) + y(.05) = 500$

$560 - .07y + .05y = 500$

$x = 5000$ at
7% interest

$-.02y = -60$

$y = 3000$ at 5% interest

7.3 The Elimination Method

$$1. \begin{array}{r} 2x - 2y = -10 \\ 2x + 2y = 50 \end{array}$$

$$4x = 40$$

$$x = 10$$

$$2(10) + 2y = 50$$

$$2y = 30$$

$$y = 15$$

$$2. \begin{array}{r} x + 3y = 5 \\ -x - 2y = -3 \end{array}$$

$$y = 2$$

$$x + 3(2) = 5$$

$$x + 6 = 5$$

$$x = -1$$

$$3. \begin{array}{r} 5x + y = 9 \\ -5x + y = 7 \end{array}$$

$$2y = 16$$

$$y = 8$$

$$5x + 8 = 9$$

$$5x = 1$$

$$x = \frac{1}{5}$$

$$4. \begin{array}{r} 3x - 12y = 18 \\ 9x + 12y = 30 \end{array}$$

$$12x = 48$$

$$x = 4$$

$$12 - 12y = 18$$

$$-12y = 6$$

$$y = -\frac{1}{2}$$

$$5. \begin{array}{r} 3x + 4y = 2 \\ 4x - 4y = 12 \end{array}$$

$$7x = 14$$

$$x = 2$$

$$6 + 4y = 2$$

$$4y = -4$$

$$y = -1$$

$$6. \begin{array}{r} \frac{1}{2}x + y = 5 \\ \frac{3}{2}x - y = 30 \end{array}$$

$$2x = 35$$

$$x = \frac{35}{2}$$

$$\frac{3}{2}\left(\frac{35}{2}\right) - y = 30$$

$$\frac{105}{4} - \frac{120}{4} = y$$

$$y = -\frac{15}{4}$$

$$7. \begin{array}{r} (2x - 10y = 0) \cdot 2 \\ 4x - 6y = 14 \end{array} \rightarrow$$

$$2x - 10 = 0$$

$$2x = 10$$

$$x = 5$$

$$\begin{array}{r} -4x + 20y = 0 \\ 4x - 6y = 14 \end{array}$$

$$14y = 14$$

$$y = 1$$

$$8. \begin{array}{r} 4x + y = 8 \\ -4(x - 10y = 2) \end{array} \rightarrow$$

$$4x = 8$$

$$x = 2$$

$$\begin{array}{r} 4x + y = 8 \\ -4x + 40y = -8 \end{array}$$

$$41y = 0$$

$$y = 0$$

$$9. \begin{array}{r} 3x - 8y = 9 \\ -3(x - y = 2) \end{array} \rightarrow$$

$$x + \frac{3}{5} = 2$$

$$x = \frac{10}{5} - \frac{3}{5}$$

$$x = \frac{7}{5}$$

$$\begin{array}{r} 3x - 8y = 9 \\ -3x + 3y = -6 \end{array}$$

$$-5y = 3$$

$$y = -\frac{3}{5}$$

$$10. \begin{cases} 5x - 4y = 2 \\ 4(2x + y = 6) \end{cases} \rightarrow$$

$$2(2) + y = 6$$

$$\boxed{y = 2}$$

$$\begin{array}{r} 5x - 4y = 2 \\ 8x + 4y = 24 \end{array}$$

$$13x = 26$$

$$\boxed{x = 2}$$

$$11. \begin{cases} 3x - 2y = 10 \\ -2(2x - y = 8) \end{cases} \rightarrow$$

$$3(6) - 2y = 10$$

$$18 - 2y = 10$$

$$2y = 8$$

$$\boxed{y = 4}$$

$$\begin{array}{r} 3x - 2y = 10 \\ -4x + 2y = -16 \end{array}$$

$$-x = -6$$

$$\boxed{x = 6}$$

$$12. \begin{cases} 4x + 10y = 6 \\ 2(-2x + 6y = -14) \end{cases} \rightarrow$$

$$4x + 10 = 6$$

$$4x = 16$$

$$\boxed{x = 4}$$

$$\begin{array}{r} 4x + 10y = 6 \\ -4x + 12y = -28 \end{array}$$

$$22y = -22$$

$$\boxed{y = -1}$$

$$13. \begin{cases} \text{T-shirts: } \$12 \\ \text{Caps: } \$9 \end{cases}$$

$$\begin{cases} (x) \\ (y) \end{cases}$$

$$-9(x + y = 114)$$

$$12x + 9y = 1242$$

$$-9x - 9y = -1026$$

$$12x + 9y = 1242$$

$$3x = 216$$

$$x = 72 \text{ T-shirts}$$

$$y = 42 \text{ Caps}$$

7.4 Consistent and Inconsistent Systems

1. $2y - 3x = 2 \rightarrow 2y = 3x + 2$
 $2y = 3x - 4$
 $y = \frac{3}{2}x - 2$
 $y = \frac{3}{2}x + 1$
Inconsistent

2. $2x + 3y = 9$
 $2x - 3y = 3$
 $4x = 12$
 $x = 3$
 $2(3) - 3y = 3$
 $3y = 3$
 $y = 1$
Consistent

3. $y = 5x + 2$
 $y = -5x + 2$
Consistent

4. $y = x + 2$
 $y = x - 4$
Inconsistent

5. $4y = 2x - 6$ $2y = -x - 3$
 $y = \frac{1}{2}x - \frac{3}{2}$ $y = -\frac{1}{2}x - \frac{3}{2}$
Consistent & Independent

6. $y = -x + 4$ $y = -x + 2$
Inconsistent

7. $5x + 3y = -6$ $2x + y = -4$
 $3y = -5x - 6$ $y = -2x - 4$
 $y = -\frac{5}{3}x - 2$
Consistent & Independent

8. $x + 3y = 1$ $2x + 6y = 3$
 $3y = -x + 1$ $6y = -2x + 3$
 $y = -\frac{1}{3}x + \frac{1}{3}$ $y = -\frac{1}{3}x + \frac{1}{2}$

Inconsistent

9. $3x + 6y = 3$ $2x + 4y = 2$
 $6y = -3x + 3$ $4y = -2x + 2$
 $y = -\frac{1}{2}x + \frac{1}{2}$ $y = -\frac{1}{2}x + \frac{1}{2}$

Consistent & Dependent

10. $6x - 9y = 12$ $8x - 12y = 16$
 $9y = 6x - 12$ $12y = 8x - 16$
 $y = \frac{2}{3}x - \frac{4}{3}$ $y = \frac{2}{3}x - \frac{4}{3}$

Consistent & Dependent

11. $2x - y = 2$ $3x - 2y = 1$
 $y = 2x - 2$ $2y = 3x - 1$
 $y = \frac{3}{2}x - \frac{1}{2}$

Consistent & Independent

12. $3x + y = 2.7$ $x - 2y = -1.9$
 $y = -3x + 2.7$ $2y = x + 1.9$
 $y = \frac{1}{2}x + .95$
Consistent & Independent

7.6 Classic Puzzles in Two Variables

1. R = Roberto's Age

J = Joel's Age

$$R - 1 = J \quad R = J + 1$$

$$R + J = 27$$

$$(J + 1) + J = 27$$

$$2J = 26$$

$$\boxed{J = 13 \quad R = 14}$$

2. L = Latisha's Age

B = Brother's Age

$$L = 3B$$

$$L + 6 = 2B$$

$$3B + 6 = 2B$$

$$B = \frac{L + 6}{2}$$

$$L = 3\left(\frac{L + 6}{2}\right)$$

$$\frac{2}{3}L = L + 6$$

$$2L = 3L + 18$$

$$\boxed{L = 18}$$

$$\boxed{B = 6}$$

3. $(.01)p + (.05)n = 4.32$

$$p + n = 260$$

$$p = 260 - n$$

$$(.01)(260 - n) + (.05)n = 4.32$$

$$2.6 - (.01)n + (.05)n = 4.32$$

$$.04n = 1.72$$

$$\boxed{n = 43} \quad \boxed{p = 217}$$

4. $n + q = 57$

$$(.65)n + (.25)q = 7.25$$

$$n = 57 - q$$

$$(.65)(57 - q) + (.25)q = 7.25$$

$$2.85 - (.65q) + (.25q) = 7.25$$

$$2.85 + .2q = 7.25$$

$$.2q = 4.4$$

$$\boxed{q = 22 \quad n = 35}$$

5. $.32x + .4y = 14.4$

$$x + y = 42$$

$$x = 42 - y$$

$$.32(42 - y) + .4y = 14.4$$

$$13.44 - .32y + .4y = 14.4$$

$$.08y = 0.96$$

$$y = \boxed{12 \text{ 40-cent stamps}}$$

$$\boxed{30 \text{ 32-cent stamps}}$$

6. $t = \text{tens digit}$ $u = \text{units digit}$

$$t + u = 12$$

\rightarrow

$$t + 3t = 12$$

$$u = 3t$$

$$4t = 12$$

$$u = 9$$

$$t = 3$$

Number = 39